County of San Diego

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RICHARD HAAS
ASSISTANT DIRECTOR

November 6, 2003

Michael McCann, Supervising Engineer
California Regional Water Quality Control Board, Region 9
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Dear Mr. McCann:

TENTATIVE ADDENDA TO MONITORING AND REPORTING PROGRAMS OF NPDES PERMITS FOR AGENCIES DISCAHRGING TO THE OCEANSIDE AND ENCINA OCEAN OUTFALLS

COMMENTS FROM ENCINA WWA (WASTE WATER AUTHORITY) ON THE "STANDARD OPERATING PROCEDURES FOR THE COLLECTION OF WATER SAMPLES FOR BACTERIAL ANALYSIS FROM OCEAN AND BAY RECEIVING WATERS", POTW:01-0030.02:VASQV, POTW: 01-0115.02 VASQV, POTW: 01-0146.02 VASQV, POTW: 01-1182.02 VASQV

The Department of Environmental Health (DEH) will address each comment in the Encina WWA October 24, 2003 letter.

- Many versions of the Standard Methods for Water Analysis exist in varying forms. Therefore, we suggest using the words, "most current approved version." *DEHs response: Agree, and add to 'most recent approved version' the following, " by the Joint Editorial Board consisting of the American Water Works Association, Water Environment Federation, and American Public Health Association".*

- Wearing gloves during sample gathering is not practical as they can become slippery. *DEHs response: Disagree. The use of latex or nitrile gloves is required for the protection of the sampler's health and to prevent cross contamination of the sample. When used in conjunction with a sampling pole that allows the sampler to collect the sample at a discrete distance from the water, gloves should not become so wet that they interfere with sample collection.*

- The use of 100 mL bottles is not sufficient for the membrane filtration and testing required by the NPDES permit; instead the Encina Water Authority (EWA) uses 500mL bottles. *DEHs response: The Standard Operating Procedures were written from the DEH perspective; DEH routinely uses 100mL size bottles. The size of the bottle is not important for the standardization of procedures. The important procedural issue is that sample results are given in MPN or CFU / 100mL, which is the standard unit size used in state regulations. The reference to bottle size in the S.O.P. has been removed.*

- Please provide more clarification on the methods necessary to ensure sterilized samples [sic] bottles that are EPA approved. *DEHs response: Delete the term "EPA approved" under*

Sampling Report and documentation in the S.O.P. The important procedural issue is that sample collection is performed with sterilized bottles.

- The use of a sampling pole is not practical, and may pose a safety concern, in some conditions where sampler is required to cross cliffs to get to the shoreline. *DEHs response: Disagree. The use of a sampling pole is preferred for several reasons. It allows the sampler not to immerse a hand or arm into the water thereby reducing the potential for cross contamination and prevents exposure of sampler's face to waves and potentially contaminated water when bending over to collect the sample. Using a pole also allows collection of the sample at a distance away from his/ her body, which will minimize collection of bacteria suspended from sediments by the sampler's boots. Sampler safety should always be a priority. If a sampler needs to cross cliffs to access the beach, the required site may not be safe and the presence or absence of a sampling pole will not make a significant difference.*

- A depth of 12 inches for sampling, in our experience, results in additional sediment in the sample; a depth of greater than 12 inches may be more appropriate. *DEHs response: Disagree. DEH is a regular participant of the Beach Water Quality Workgroup, Monitoring & Reporting Subcommittee. This subcommittee consists of health departments, POTWs, (Publicly Owned Treatment Works) and other agencies involved with shoreline sampling in the Southern California Bight. Based upon discussions within this subcommittee, it is DEH's understanding that most agencies sample in ocean waters of 12 inches depth or less. The depth at which samples are collected is important for the standardization of procedures and for the comparability of results from those samples. Studies by Grant et. al., indicate bacterial levels can be one magnitude higher in shallower (ankle) water compared to deeper (waist). For the protection of public health and for the standardization of sampling procedures in San Diego County, DEH recommends that the sampler wade to a depth of 12 inches. The use of a sampling pole may allow the sampler to collect the sample away from his body and disturbance caused by his boots, thereby minimizing sediments in the sample.*

- During certain conditions, sediment will enter the sample bottle regardless of the sampling procedure. *DEHs response: Agree. We have deleted instruction xiii under "Shoreline Sample Collection – For samples collected from bay or ocean waters" in the S.O.P. and replaced with "Sampler should try to minimize the amount of surface residue, sediment, or debris allowed to enter the sample bottle."*

If you have any questions, please call me at (619) 338-2201 or Clay Clifton at (619) 338-2386.

Sincerely,

MARK MCPHERSON, Chief
Land and Water Quality Division

JM:cc

Enclosure:

STANDARD OPERATING PROCEDURES FOR THE COLLECTION OF WATER SAMPLES FOR BACTERIAL ANALYSIS FROM AND OCEAN AND BAY RECEIVING WATERS

cc: Ms. Kathi Moore
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Mr. Michael T. Thonton, Manager
San Elijo Joint Powers Authority
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County of San Diego

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION

STANDARD OPERATING PROCEDURES FOR THE COLLECTION OF WATER SAMPLES FOR BACTERIAL ANALYSIS FROM AND OCEAN AND BAY RECEIVING WATERS.
(This document format is adapted from the S.O.P. written by G. Williams, City of San Diego).

Shoreline ('Surf Zone' in NPDES permits) sample collection

Equipment List
1. Rubber Gloves
2. Coolers (2)
3. Blue Ice
4. Sample Bottles
5. 4'-8' Sample Pole
6. Sampling Syringes
7. Sample Bottle Labels
8. Rubber Waders/Boots
9. Sharpie© Permanent Marker
10. Ballpoint Pen
11. Mechanical Pencil
12. Clipboard
13. Field Data Sheets
14. GPS Unit
15. Stop Watch
16. Flashlight
17. Tape Measure
18. Digital Camera
19. Site Maps
20. City Identification
21. Personal Business Cards
22. Lab Chain of Custody Sheets
23. Cellular Phone

I Introduction:

To properly determine bacteria concentrations in urban runoff and receiving waters, field and laboratory staff must collect and analyze samples in accordance with the following guidance documents.

- Standard operating procedures (S.O.P.) for the collection of water samples for bacterial analysis from ocean and bay receiving waters.
- Most current version of Standard Methods for Wastewater Analysis approved by the Joint Editorial Board, consisting of the American Water Works Association, Water Environment Federation, and American Public Health Association.

General Standard Sampling Procedures:

Care should be taken to avoid direct, indirect, and cross contamination of the water, sample containers, coolers, and other tools used to collect water samples.

Do's

- Store / transport unused sample bottles in a sealed plastic bag.
- Always wear nitrile or latex gloves when handling samples.
- Use unopened autoclaved / sterilized clear plastic bottles.
- Store / transfer receiving water and storm drain samples in separate coolers.

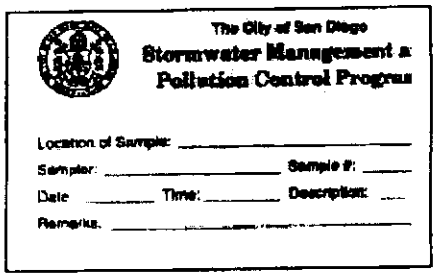
Do Not's

- Remove the cap until immediately prior to sampling.
- Touch the inside of the bottle or cap.
- Place the cap on the ground or in a pocket.
- Rinse the bottle.

Sampling Report and documentation:

The following pertinent information shall be recorded on all Chain of Custody Records / Sampling Reports. Labels with bottle numbers will be placed on sterilized sample bottles prior to sample collection. Information shall be written using an indelible ink pen and in ones best handwriting.

i Bottle number
ii Location of Sample – name and Site ID
iii Distance (ft.) and Direction (facing water) from mixing zone (0 M) of outlet. If no outlet, leave blank.


The City of San Diego
Stormwater Management & Pollution Control Program

Location of Sample: _____
Sampler: _____ Sample #: _____
Date _____ Time: _____ Description: _____
Remarks: _____

iv Project Title
v Sampler – Record sampler's initials
vi Date – Record date in the MM-DD-YY format
vii Time – Record using 24-hour clock
viii Observations– Record observations, including number and types of potential bacterial sources on beach within 25 yards, i.e., birds, children, rotting kelp, etc. At outlets, note if flow from outlet reaches mixing zone or dries in sand.

Updated 11-04-03

Shoreline Sample Collection– For samples collected from bay or ocean waters.

i. Time of Day. Target sampling time is 0700 – 1100 hrs.

ii. Tide. At flowing river or lagoon mouths, collect at least 3 hrs after high tide if possible.

iii. Fill out all sample bottle information on Chain of Custody documentation. Leave COC paperwork in dry place on shore.

iv. Place the bottle into the sampling pole hose clamp. If necessary, adjust tightness of hose clamp on bottle. Loosen the screw cap.

v. For samples at outlets. Starting at the mixing zone, walk along shoreline to specified distance from mixing zone. Use either measurement tool (rope or line cut to desired distance) or count large strides (approximately 3 feet long) to count as yards.

vi. For samples along open coast. Collect sample at routine location. If no identifiable landmarks, use GPS to locate position.

vii. Remove the screw cap, holding the open side of the cap facing the ground and turn the bottle so the opening is facing the ground. DO NOT PLACE THE CAP ON THE GROUND OR IN A POCKET

viii. The sampler will wade into the water to a depth of about 12 inches (middle of the shinbone). On an incoming wave (not outgoing wave), the sampler shall reach the bottle far out in front using the sample pole to ensure water collected does not contain sediment suspend while wading.

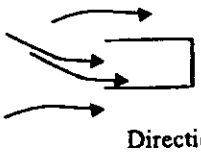
ix. Plunge the bottle into the water with the bottle opening facing downwards to a depth of approximately 4"-6" below the surface.

x. Turn the bottle such that the mouth of the bottle opening points slightly upwards, while slowly moving the bottle horizontally through the water (this eliminates cross contamination from sampling equipment or hands).

xi. When the bottle is nearly full tilt the bottle upwards while removing the bottle from the water.

xii. Decant as necessary to lower the water level to the shoulder of the bottle assuring that a small amount of air is left in the sample container prior to capping.

Wade into the water approximately 1 foot deep, incoming wave, sweeping motion 4-6 inches beneath the water.



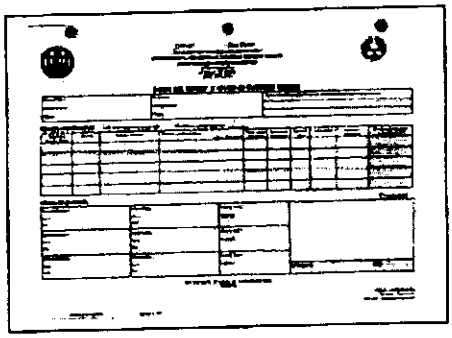
Direction of bottle for sample collection beneath surface

xiii. Sampler should try to minimize the amount of surface residue, sediment, or debris allowed to enter the sample bottle.

xiv. Replace the cap tightly.

xv. Place the sample into the cooler. All samples will be kept on ice (blue ice) in the dark from the time of sample collection until delivery to the analytical laboratory.

xvi. Samples will be delivered to the laboratory within 6 hours of sample collection.



Sampling Report and Chain of Custody Procedures – An official Chain of Custody Record/ Sampling Report shall be completed for all samples submitted to the laboratory.

i Record the appropriate sample information section.
ii Fill in any appropriate comments or special instructions to the laboratory staff.
iii Relinquish samples to the laboratory by legibly printing, signing, and dating the chain of custody section.
iv Retain copies of the Chain of Custody Record / Sampling Report for filing

Cooler/Blue Ice Clean-up – The coolers and Blue Ice shall be cleaned after delivery of the samples to the laboratory.

i Put on laboratory latex or nitrile gloves.
ii With a soapy sponge and warm water, wash and rinse the cooler and Blue Ice.
iii Dry the cooler and Blue Ice completely by wiping with paper towels.
iv Wipe down with a 1% benzylchronium chloride saturated towel to decontaminate.

Material Resupply – perform daily and/or as needed.

i Place Blue Ice into the sample storage freezer for future use.
ii Obtain additional Chain of Custody Record / Sampling Reports Obtain additional sample bottles as necessary.